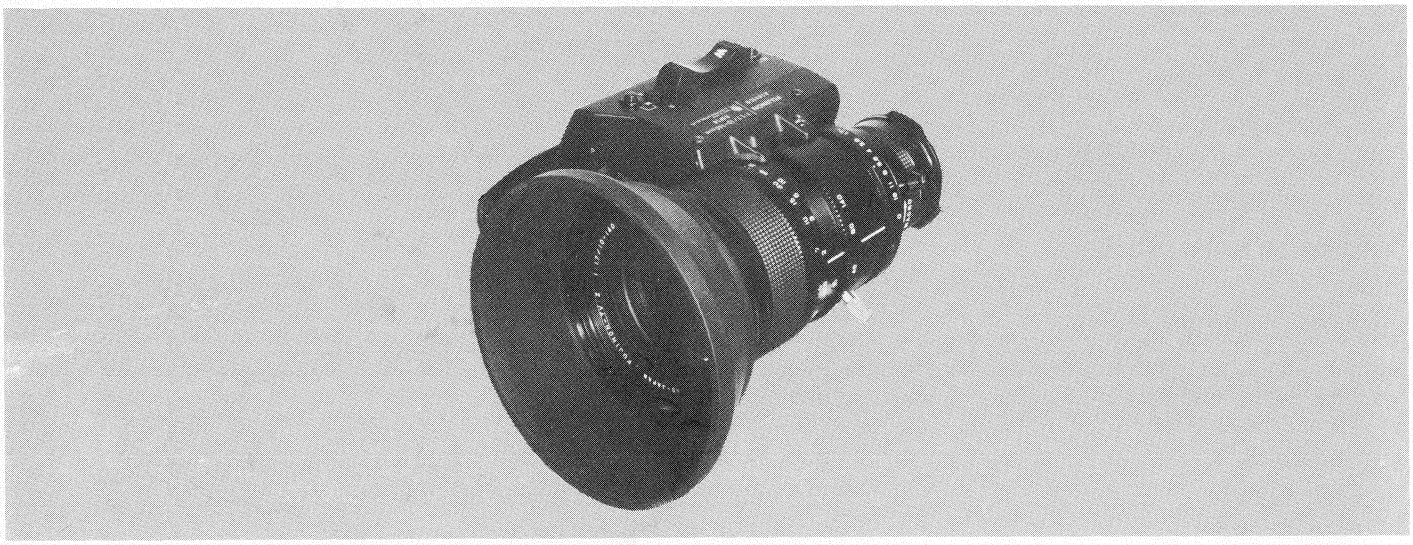
ORDER NO. VKD84070851C8

Service Manual

Video Camera Lens

A14X10BRM14E



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Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

SPECIFICATIONS

Focal Length	10mm - 140mm
Zoom Ratio	14X
Maximum Aperture (F-No)	1.7 (10 —100mm) — 2.4 (140mm)
Iris Range	1.7 -16, Close
Back Focal Length	39.15mm (in air)
Flange Focal Length	48.0mm (in air) ±0.4mm adjustable
Focus Range	∞ - 1m (from front lens vertex)
Shift of Front Lens	5.67mm
Field Angle	
Diagonal	57°37' -4°30'
Horizontal	47°30' - 3°36'
Vertical	36°37' - 2°42'
Object Area at M.O.D. (1m)	Wide 600 mm X 800 mm
	Tele 44 mm X 59 mm
Effective Aperture of Lens	Front 64.0 mm dia.
	Rear 23.5 mm dia.
Exit Pupil Position	+305.02mm (from image plane)
Front Thread	72mm dia., P=0.75mm
Iris Control	Servo or Manual
Zoom Control	Servo or Manual (Flexible Cable is attachable)
Focus Control	Manual (Flexible Cable or Servo Unit is attachable)
Mount	Bayonet Mount
Weight	1.3kg (with Iris/Zoom Drive Unit)

1. DISASSEMBLY PROCEDURE

- Loosen a screw holding lens hood and remove lens hood.
- Pull out the fine control knob and remove fine control knob. (Fig. 1-1)

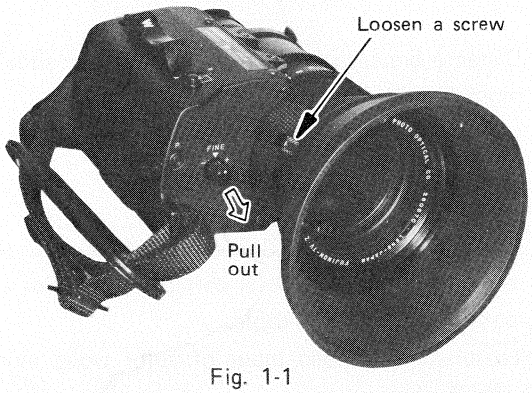


Fig. 1-1

- Remove two screws holding grip pad and remove grip pad.
- Remove eight screws holding main cover and remove main cover. (Fig. 1-2)

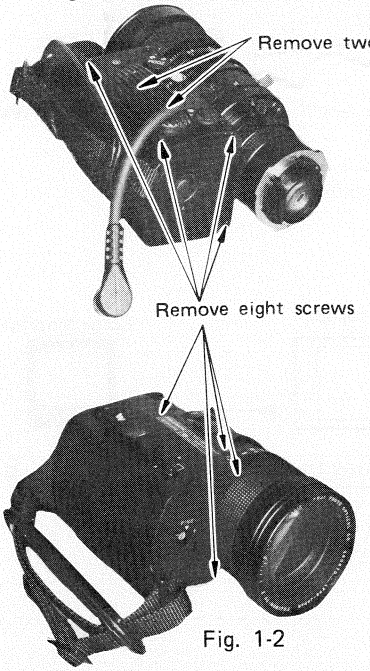


Fig. 1-2

- Remove two screws holding amplifier board and remove amplifier board. (Fig. 1-3)

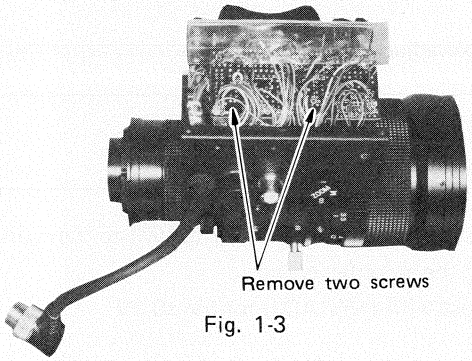


Fig. 1-3

- Remove two screws holding PCB mounting assembly and remove PCB mounting assembly.
- Remove two screws holding seesaw control assembly and remove seesaw control assembly. (Fig. 1-4)

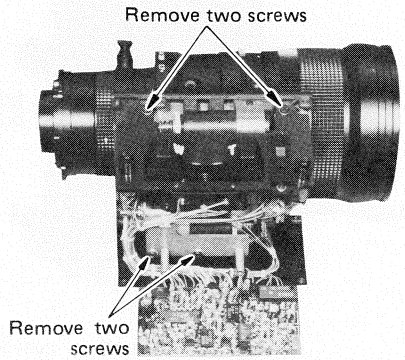


Fig. 1-4

- Remove three screws holding base casting and remove base casting. (Fig. 1-5)

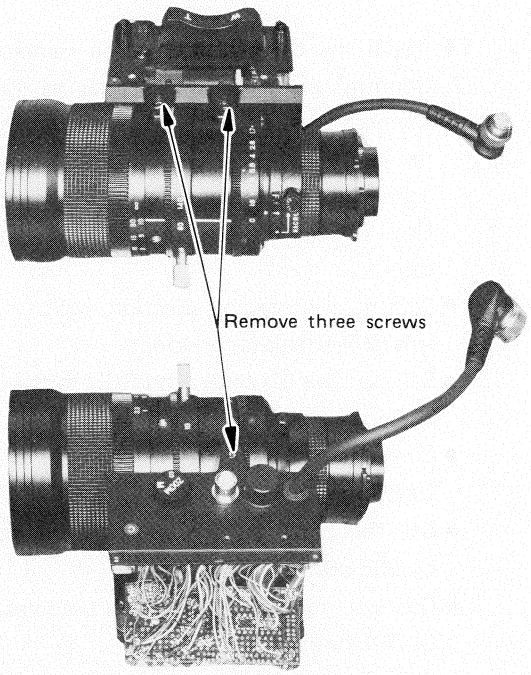


Fig. 1-5

Note : 1. Install the base casting as follows,

- Set the lens iris to "•" mark (upper of F5.6). (Fig. 1-6)

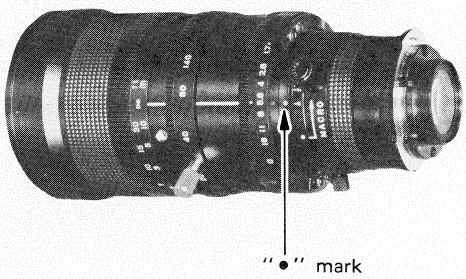


Fig. 1-6

- Put together the black mark of potention gear to black mark of base casting. (Fig. 1-7)

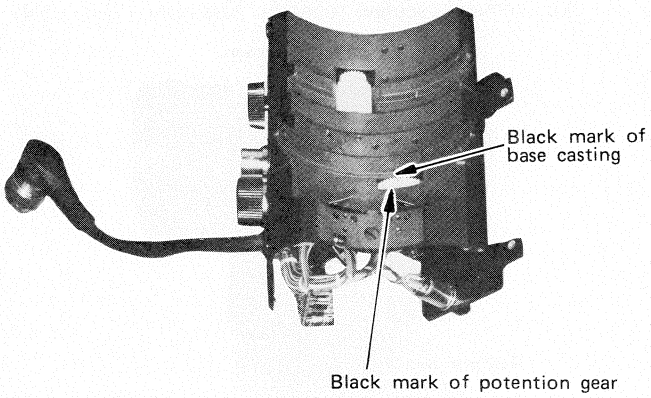


Fig. 1-7

- Install the base casting to the camera lens.

2. Confirm the operation of iris as follows;
   - Connect the 32-pin VTR/RCU connector on the rear of camera to the 32-pin Camera cable connector on the rear of the Remote Control Unit (RCU) WV-RC31 using 32-pin camera cable.
   - Set the Iris control selection switch on the lens to R (Remote) position.
   - Set the Lens iris control on RCU to the OPEN position.
   - Confirm that the lens iris becomes fully OPEN position.
   - Set the Lens iris control on RCU to the CLOSE position.
   - Confirm that the lens iris becomes fully CLOSE position.
   - If iris do not becomes each position, readjust the iris gear so that the iris gear matches iris ring on the lens.
3. Make sure that the rotation of gear rotate smoothly after the iris gear and the like are repaired.

- After replacing the parts, reinstall the lens in reverse order of disassembly procedure.

2. ADJUSTMENT PROCEDURE

2-1 Connection and Setting Up for Adjustment

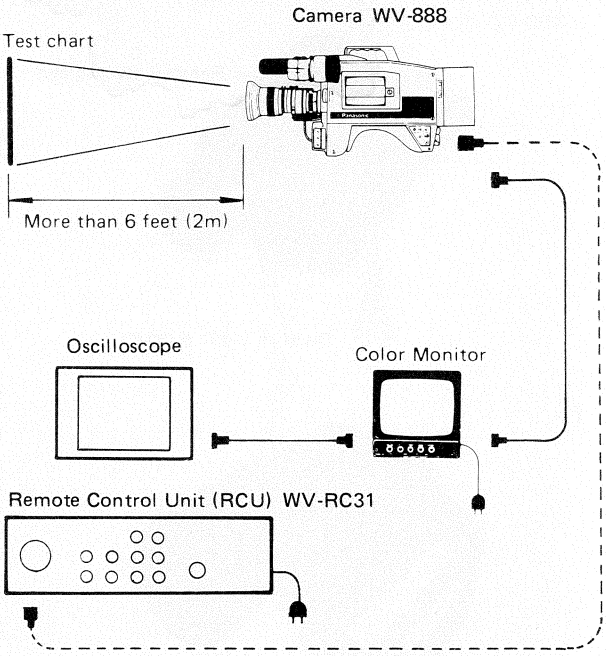
Set-up

- Refer to the disassembly procedure for adjustment on page 2.

- Distance between the camera and test chart should be more than 2m.
- Light : 2000 lux incident, 3200°K

Connection

- Connect the VIDEO OUT connector on the rear of camera to the VIDEO IN connector of color video monitor using coaxial cable.
- Terminate the video input of color video monitor with 75 ohms.
- Connect the VIDEO OUT connector of color video monitor to the oscilloscope using coaxial cable.



2-2 Lens Adjustment

(1) +5V adjustment

Test point :	Round No. 2
Adjust :	VR4 (+5V ADJ)

- Attach the Digital voltmeter (DVM) to the round No. 2 on the amplifier board.
- Adjust VR4 (+5V ADJ) for 5V ±0.1V.

(2) Video level adjustment

Test point :	Video out
Adjust :	VR3 (VIDEO LEVEL ADJ)

- Aim the camera at the logarithmic gray scale chart.
- Set the Iris control selection switch to M (Manual) position.
- Set the Auto iris level fine control to mechanical center position.
- Set the iris level to F4.0.
- Confirm that the waveform from the bottom level of sync to the top of the logarithmic gray scale waveforms becomes 1.0Vp-p.
- Set the Iris control selection switch to A (Auto) position.
- Adjust VR3 (VIDEO LEVEL ADJ) so that the waveform from the bottom level of sync to the top step of the logarithmic gray scale waveform becomes 1.0Vp-p. (Fig. 2-2-1)

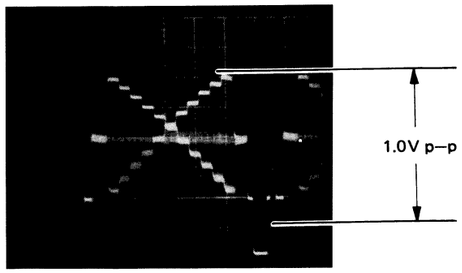


Fig. 2-2-1

(3) Zoom balance adjustment

Test point :	Round No. 16
Adjust :	VR7 (ZOOM BALANCE ADJ)

- Confirm that the voltage of round No. 2 is 5.0V.
- Keep pushing the Power servo zoom control to Tele position.
- Attach the DVM to round No. 16 on the amplifier board.
- Note the voltage of round No. 16 as (A) and note the voltage of (A)–5.0V as (B).
- Keep pushing the power servo zoom control to Wide position.
- Attach the DVM to round No. 16 on the amplifier board.
- Note the voltage of round No. 16 as (C).
- Adjust VR7 (ZOOM BALANCE ADJ) so that the voltage (C) becomes as equal as 5.0V–(B).

(4) Offset adjustment

Test point :	Pin 1 of IC4
Adjust :	VR8 (OFFSET ADJ)

- Set the Servo/Manual Zoom Select Knob to S (Servo) position.
- Attach the DVM to the pin 1 of IC4.
- Adjust VR8 (OFFSET ADJ) for 5.0V ± 0.03V.

(5) Zoom speed adjustment

Adjust :	VR9 (ZOOM SPEED ADJ)

- Set the Servo/Manual Zoom Select Knob to S (Servo) position.
- Set the lens to fully wide position by pressing the Power Servo Zoom Control.
- Measure the time from Wide position to Tele position and note the time as (A).
- Adjust VR9 (ZOOM SPEED ADJ) so that the zoom control time (A) from Wide to Tele position becomes 2.7 sec±0.3 sec.

(6) Iris open and close adjustment

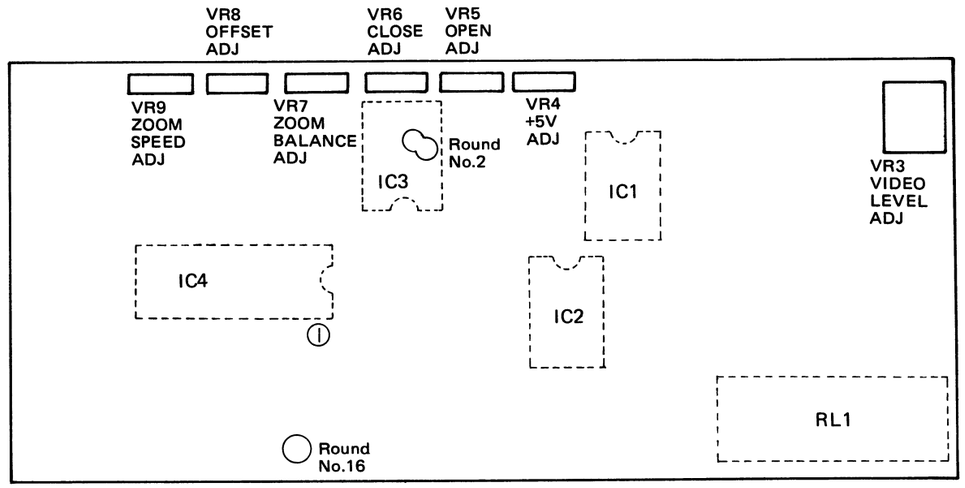
Adjust :	VR5 (OPEN ADJ) VR6 (CLOSE ADJ)

Note : This adjustment has to be made only when the Remote Control Unit (RCU) WV-RC31 is connected to the camera WV-888.

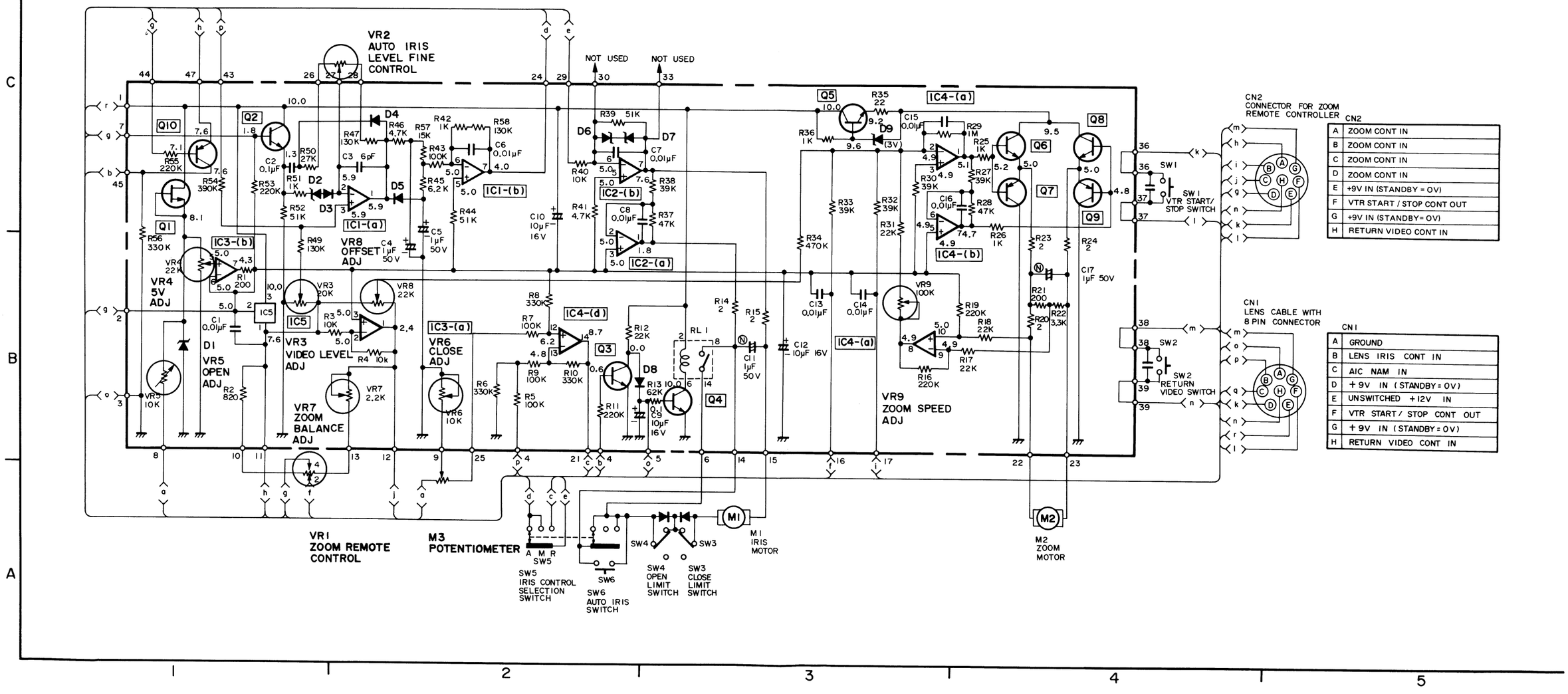
- Connect the 32-pin VTR/RCU connector on the rear of camera to the 32-pin Camera cable connector on the rear of the Remote Control Unit (RCU) WV-RC31 using 32-pin camera cable.
- Set the Iris control selection switch on the lens to R (Remote) position.
- Set the Lens Iris Control on RCU to the OPEN position.
- Adjust VR5 (OPEN ADJ) so that the lens iris becomes fully Open position.
- Set the Lens Iris Control on RCU to the CLOSE position.
- Adjust VR6 (CLOSE ADJ) so that the lens iris becomes fully Open position.
- Repeat these steps until the each iris position becomes fully open or close position.

LOCATION OF CONTROLS AND TEST POINTS

— Conductor Side —



SCHEMATIC DIAGRAM OF AMPLIFIER BOARD

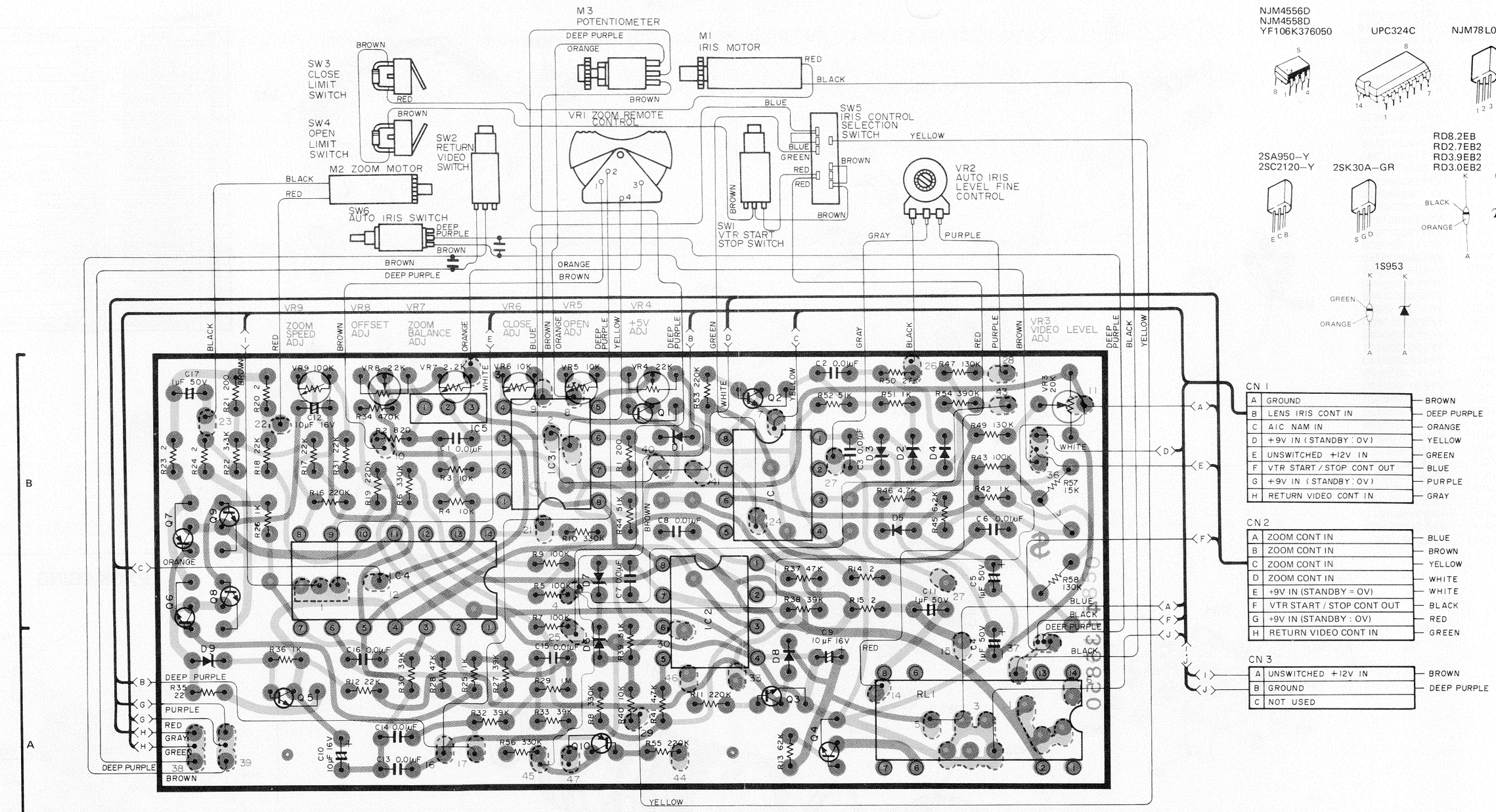


CN2	
A	ZOOM CONT IN
B	ZOOM CONT IN
C	ZOOM CONT IN
D	ZOOM CONT IN
E	+9V IN (STANDBY = OV)
F	VTR START / STOP CONT OUT
G	+9V IN (STANDBY= OV)
H	RETURN VIDEO CONT IN

CN1	
A	GROUND
B	LENS IRIS CONT IN
C	AIC NAM IN
D	+9V IN (STANDBY= OV)
E	UNSWITCHED +12V IN
F	VTR START/ STOP CONT OUT
G	+9V IN (STANDBY= OV)
H	RETURN VIDEO CONT IN

IC1	YF106K376050	C2	Q1	2SK30A-GR	C1	Q6	2SC2120-Y	C4	D1	RD8,2EB	B1	D6	RD3,9EB2	C2
IC2	NJM4556D	B2,C2	Q2	2SC2120-Y	C1	Q7	2SA950-Y	C4	D2	RD2,7EB2	C1	D7	RD3,9EB2	C2
IC3	NJM4558D	B1,B2	Q3	2SC2120-Y	B2	Q8	2SC2120-Y	C4	D3	1S953	C1	D8	1S953	B2,B3
IC4	UPC324C	B2,B3,C3	Q4	2SC2120-Y	B3	Q9	2SA950-Y	C4	D4	1S953	C2	D9	RD3,0EB2	C3
IC5	NJM78L02A	B1	Q5	2SC2120-Y	C3	Q10	2SA950-Y	C1	D5	1S953	C2			

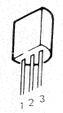
CONDUCTOR VIEW OF AMPLIFIER BOARD



NJM4556D
NJM4558D
YF106K376050

UPC324C

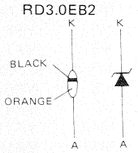
NJM78L02A



2SA950–Y
2SC2120–Y

2SK30A–GR

RD8.2EB
RD2.7EB2
RD3.9EB2
RD3.0EB2



1S953

CN 1

A	GROUND	BROWN
B	LENS IRIS CONT IN	DEEP PURPLE
C	AIC NAM IN	ORANGE
D	+9V IN (STANDBY : OV)	YELLOW
E	UNSWITCHED +12V IN	GREEN
F	VTR START / STOP CONT OUT	BLUE
G	+9V IN (STANDBY : OV)	PURPLE
H	RETURN VIDEO CONT IN	GRAY

CN 2

A	ZOOM CONT IN	BLUE
B	ZOOM CONT IN	BROWN
C	ZOOM CONT IN	YELLOW
D	ZOOM CONT IN	WHITE
E	+9V IN (STANDBY = OV)	WHITE
F	VTR START / STOP CONT OUT	BLACK
G	+9V IN (STANDBY : OV)	RED
H	RETURN VIDEO CONT IN	GREEN

CN 3

A	UNSWITCHED +12V IN	BROWN
B	GROUND	DEEP PURPLE
C	NOT USED	

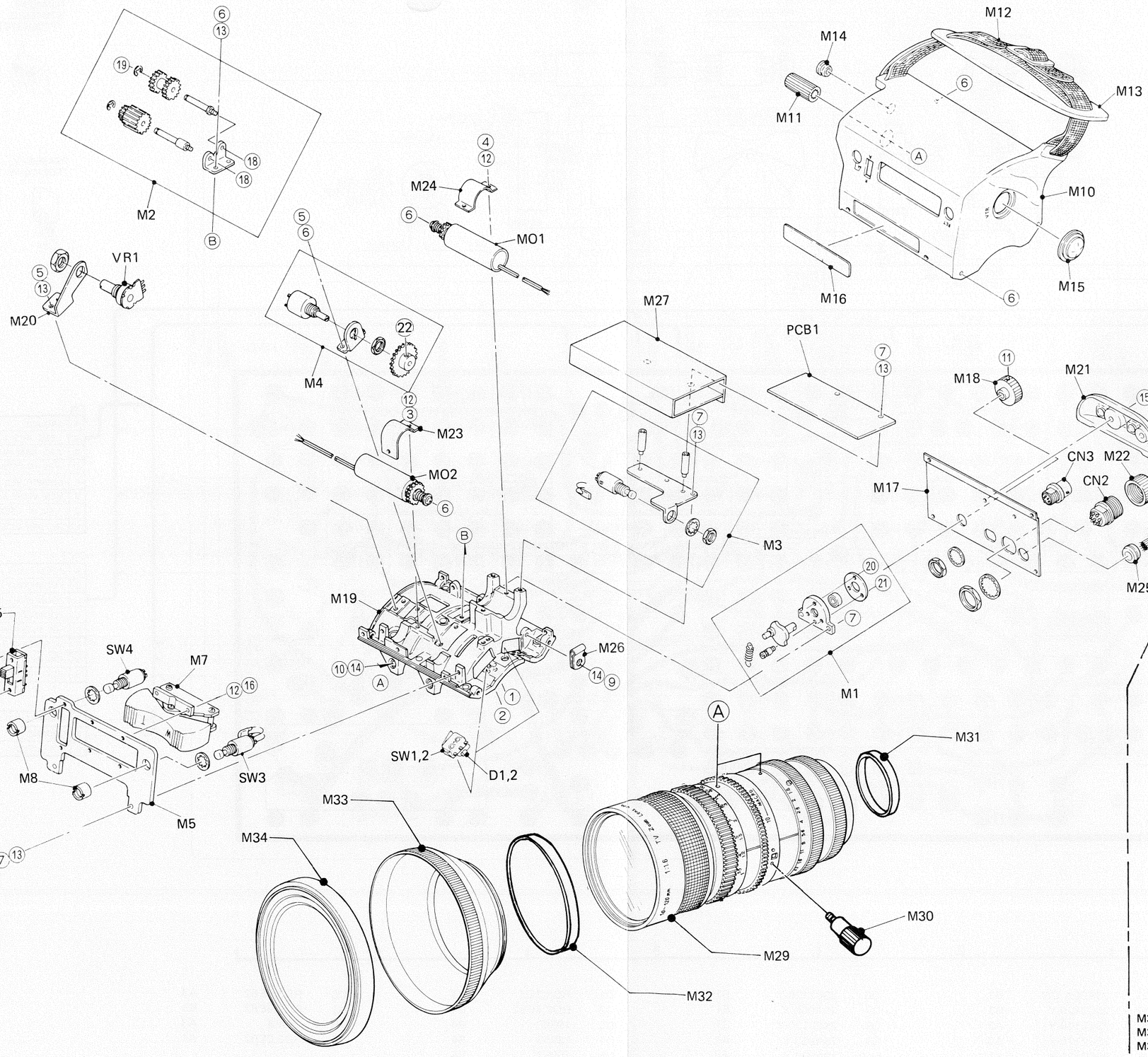
IC1	YF106K376050	B3
IC2	NJM4556D	A3,B3
IC3	NJM4558D	B2,B3
IC4	UPC324C	B2
IC5	NJM78L02A	B2

Q1	2SK30A-GR	B3
Q2	2SC2120-Y	B3
Q3	2SC2120-Y	A3
Q4	2SC2120-Y	A3
Q5	2SC2120-Y	A1
Q6	2SC2120-Y	B1
Q7	2SA950-Y	B1
Q8	2SC2120-Y	B1
Q9	2SA950-Y	B1
Q10	2SA950-Y	A3

D1	RD8,2EB	B3
D2	RD2,7EB2	B4
D3	1S953	B4
D4	1S953	B4
D5	1S953	B4
D6	RD3,9EB2	A3
D7	RD3,9EB2	B3
D8	1S953	A3
D9	RD3,0EB2	A1

EXPLODED VIEW

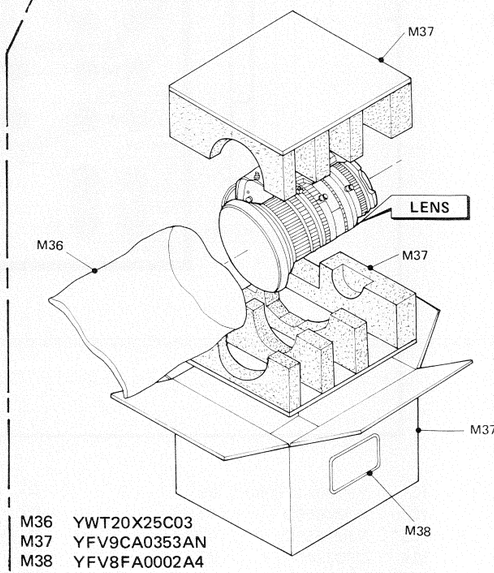
PCB1	338A4135870
D1,2	10D1
VR1	YF117K467310
SW1,2	YF121K375860
SW3,4	YF121K427180
SW5	YF121K364940
MO1	101A3630240
MO2	101A3630270
CN1	YF113K398230
CN2	YF112K320460
CN3	YF112K375870
M1	YF28A3637250
M2	YF34A3630190
M3	YF41A3630380
M4	117A3630290
M5	YF41B3630350
M6	YF11B3440120
M7	117A3275480
M8	YF54B2891260
M9	YF41B3377670
M10	YF11B3630830
M11	YF16B3630850
M12	YF56B2868480
M13	YF56B2868490
M14	YF57B3431140
M15	YF57B2160890
M16	YF58B4103680
M17	YF11B3630400
M18	YF16B3630340
M19	YF41B3629740
M20	YF41B3630840
M21	YF55B1990760
M22	YF57B1990290
M23	YF85B3630320
M24	YF85B3630330
M25	YF42R7000040
M26	111R1140010
M27	115B3630510
M29	324A3438370
M30	YF97B1607400
M31	YF300M031N
M32	YF300M075N
M33	YF97A3133220
M34	YF300M120N



Numbers show Screws

No.	Screws	Description
①	110M140251M	Screw
②	110M140601M	Screw
③	110M200353M	Screw
④	110M200403M	Screw
⑤	110M260403M	Screw
⑥	110M260503M	Screw
⑦	110M260603M	Screw
⑧	110M260803M	Screw
⑨	110M300600M	Screw
⑩	110M300800M	Screw
⑪	130M260403W	Hexagon socket setscrew
⑫	YF165M0202H	Spring washer
⑬	YF165M0262H	Spring washer
⑭	YF165M0302H	Spring washer
⑮	YF165M0262M	Spring washer
⑯	110M200603M	Screw
⑰	110M200503M	Screw
⑱	YF150M0261E	Hexagon Nat
⑲	YF191M020T	Retaining Ring E
⑳	111M200303M	Screw
㉑	111M200603M	Screw
㉒	130M260303W	Hexagon socket setscrew

PACKAGING



M36	YWT20X25C03
M37	YFV9CA0353AN
M38	YFV8FA0002A4

REPLACEMENT PARTS LIST

Important Notice

1. Components identified by ⚠ mark have special characteristics important for safety.
   When replacing any of these components, use only manufacturer's specified parts.
2. Components identified by*mark are new parts used from this model.
3. Complete printed circuit board assembly is not available as replacement part.

SYM-BOL NO.		PART NO.	DESCRIPTION
POWER SERVO ZOOM LENS MISCELLANEOUS			
D1,2	*	10D1	Diode
VR1	*	YF117K467310	Variable Resistor 50KΩ
SW1,2	*	YF121K375860	Micro Switch
SW3,4	*	YF121K427180	Auto Iris/Return Video Switch
SW5	*	YF121K364940	Iris Control Selection Switch
MO1	*	101A3630240	Zoom Motor Assy
MO2	*	101A3630270	Iris Motor Assy
CN1	*	YF113K398230	Connector Cable
CN2	*	YF112K320460	8pin Connector
CN3	*	YF112K375870	3pin Connector
M1	*	YF28A3637250	Zoom Mode Change Assy
M2	*	YF34A3630190	Zoom Drive Gear Assy
M3	*	YF41A3630380	Amplifier Board Mounting Plate Assy
M4	*	117A3630290	Iris Potentiometer Assy
M5	*	YF41B3630350	Mounting Plate for Auto Iris/Return Video Switch
M6	*	YF11B3440120	Blind Plate for Switch
M7	*	117A3275480	Zooming Knob Assy
M8	*	YF54B2891260	Mounting Nut for Auto Iris/Return Video Switch (x2)
M9	*	YF41B3377670	Mounting Plate for Switch
M10	*	YF11B3630830	Main Cover
M11	*	YF16B3630850	Auto Iris Level Fine Control Knob
M12	*	YF56B2868480	Belt
M13	*	YF56B2868490	Belt Pad
M14	*	YF57B3431140	Rubber Cap
M15	*	YF57B2160890	VTR Start/Stop Button
M16	*	YF58B4103680	Main Label
M17	*	YF11B3630400	Bottom Cover
M18	*	YF16B3630340	Servo/Manual Zoom Select Knob
M19	*	YF41B3629740	Base Casting
M20	*	YF41B3630840	Mounting Bracket for Variable Resistor
M21	*	YF55B1990760	Grip Pad
M22	*	YF57B1990290	8pin Connector Rubber Cap
M23	*	YF85B3630320	Motor Holding Plate A
M24	*	YF85B3630330	Motor Holding Plate B
M25	*	YF42R7000040	Cord Bushing
M26	*	111R1140010	Cord Clamp
M29	*	324A3438370	Zoom Lens Unit
M30	*	YF97B1607400	Zoom Lever
M31	*	YF300M031N	Front Cap
M32	*	YF300M075N	Zoom Lens Cap
M33	*	YF27A3133220	Hood
M34	*	YF300M120N	Hood Cap
338A4135870 AMPLIFIER BOARD			
PCB1	*	338A4135870	Printed Circuit Board Assy
IC1		YF106K376050	IC
IC2		NJM4556D	IC
IC3		NJM4558D	IC
IC4		UPC324C	IC
IC5		NJM78L02A	IC
Q1		2SK30A-GR	Transistor
Q2-6		2SC2120-Y	Transistor
Q7		2SA950-Y	Transistor
Q8		2SC2120-Y	Transistor
Q9,10		2SA950-Y	Transistor
D1		RD8·2EB	Zener Diode
D2		RD2·7EB2	Diode
D3-5		1S953	Diode
D6,7		RD3·9EB2	Zener Diode
D8		1S953	Diode
D9		RD3·0EB2	Zener Diode
R1		ERD25FJ201	Carbon 200 ohms 1/4W
R2		ERD25FJ821	Carbon 820 ohms 1/4W
R3,4		ERD25FJ103	Carbon 10K ohms 1/4W
R5		ERD25FJ104	Carbon 100K ohms 1/4W
R6		ERD25FJ334	Carbon 330K ohms 1/4W
R7		ERD25FJ104	Carbon 100K ohms 1/4W
R8		ERD25FJ334	Carbon 330K ohms 1/4W
R9		ERD25FJ104	Carbon 100K ohms 1/4W
R10		ERD25FJ334	Carbon 330K ohms 1/4W
R11		ERD25FJ224	Carbon 220K ohms 1/4W
R12		ERD25FJ223	Carbon 22K ohms 1/4W
R13		ERD25FJ623	Carbon 62K ohms 1/4W
R14,15		ERD25FJ2R0	Carbon 2 ohms 1/4W
R16		ERD25FJ224	Carbon 220K ohms 1/4W
R17,18		ERD25FJ223	Carbon 22K ohms 1/4W
R19		ERD25FJ224	Carbon 220K ohms 1/4W
R20		ERD25FJ2R0	Carbon 2 ohms 1/4W
R21		ERD25FJ201	Carbon 200 ohms 1/4W
R22		ERD25FJ332	Carbon 3.3K ohms 1/4W
R23,24		ERD25FJ2R0	Carbon 2 ohms 1/4W
R25,26		ERD25FJ102	Carbon 1K ohms 1/4W
R27		ERD25FJ393	Carbon 39K ohms 1/4W
R28		ERD25FJ473	Carbon 47K ohms 1/4W
R29		ERD25FJ105	Carbon 1M ohms 1/4W
R30		ERD25FJ393	Carbon 39K ohms 1/4W
R31		ERD25FJ223	Carbon 22K ohms 1/4W
R32,33		ERD25FJ393	Carbon 39K ohms 1/4W
R34		ERD25FJ474	Carbon 470K ohms 1/4W
R35		ERD25FJ220	Carbon 22 ohms 1/4W
R36		ERD25FJ102	Carbon 1K ohms 1/4W
R37		ERD25FJ473	Carbon 47K ohms 1/4W
R38		ERD25FJ393	Carbon 39K ohms 1/4W
R39		ERD25FJ513	Carbon 51K ohms 1/4W
R40		ERD25FJ103	Carbon 10K ohms 1/4W
R41		ERD25FJ472	Carbon 4.7K ohms 1/4W
R42		ERD25FJ102	Carbon 1K ohms 1/4W
R43		ERD25FJ104	Carbon 100K ohms 1/4W
R44		ERD25FJ513	Carbon 51K ohms 1/4W
R45		ERD25FJ622	Carbon 6.2K ohms 1/4W

SYM-BOL NO.	PART NO.	DESCRIPTION		SYM-BOL NO.	PART NO.	DESCRIPTION
R46	ERD25FJ472	Carbon	4.7K ohms 1/4W			
R47	ERD25FJ134	Carbon	130K ohms 1/4W			
R49	ERD25FJ134	Carbon	130K ohms 1/4W			
R50	ERD25FJ273	Carbon	27K ohms 1/4W			
R51	ERD25FJ102	Carbon	1K ohms 1/4W			
R52	ERD25FJ513	Carbon	51K ohms 1/4W			
R53	ERD25FJ224	Carbon	220K ohms 1/4W			
R54	ERD25FJ394	Carbon	390K ohms 1/4W			
R55	ERD25FJ224	Carbon	220K ohms 1/4W			
R56	ERD25FJ334	Carbon	330K ohms 1/4W			
R57	ERD25FJ153	Carbon	15K ohms 1/4W			
R58	ERD25FJ134	Carbon	130K ohms 1/4W			
VR3	117R7300210	Variable Resistor	20K ohms			
VR4	117R7290150	Variable Resistor	22K ohms			
VR5,6	117R7280130	Variable Resistor	10K ohms			
VR7	117R7280090	Variable Resistor	2.2K ohms			
VR8	117R7290150	Variable Resistor	22K ohms			
VR9	117R7280190	Variable Resistor	100K ohms			
C1	ECKF1H103KB	Cermaic	0.01μF 50V			
C2	ECKF1H104ZV	Cermaic	0.1μF 50V			
C3	ECCF1H060D	Cermaic	6pF 50V			
C4,5	ECEA1HS010	Electrolytic	1μF 50V			
C6-8	ECKF1H103KB	Ceramic	0.01μF 50V			
C9,10	ELEA1CS100	Electrolytic	10μF 16V			
C11	ECEA1HN010S	Electrolytic	1μF 50V			
C12	ECEA1CS100	Electrolytic	10μF 16V			
C13-16	ECKF1H103KB	Ceramic	0.01μF 50V			
C7	ECEA1HN010S	Electrolytic	1μF 50V			
RL1	YF120K467300	Leed Relay				
M27	115B3630510	Insulating Cover for Board				

ACCESSORY PARTS/PACKAGING PARTS

M36		YWT20X25C03	Polyethylene Bag
M37	*	YFV9CA0353AN	Packaging
M38		YFV8FA0002A4	Packaging Label